**AMENDMENTS TO THE SPECIFICATION:**

*Please amend the caption on page 1, line 15,as follows:*

~~PRIOR~~ RELATED ART AND OTHER CONSIDERATIONS

*Please amend the paragraph beginning at page 8, line 22, and continuing to page 8, line 31, as follows:*

The ~~invention is characterized in that the~~ clutter-suppressing means is arranged in such a way that the clutter component $e_c$ for a certain bin $R_k$ in the first channel is also found in the second channel multiplied by a complex constant $C(R_k)$. The complex constant $C(R_k)$ is the quotient between the complex antenna gain of the second channel and of the first channel in the direction of the ground for the current bin $R_k$. According to the invention, the complex constant is automatically adjusted in such a way that the zero position, which is individual for each bin, is directed towards the respective ground segment, thereby suppressing the clutter signal. This will be explained in detail further below.

*Please amend the paragraph beginning at page 9, line 29, and continuing to page 10, line 11, as follows:*

The radar device preferably provides a method and an arrangement for suppressing unwanted radar reflections from ground and sea, so-called ground or sea clutter. The radar system ~~according to the invention~~ is intended to be arranged on a moving unit such as an aircraft and is intended to preferably detect targets in the air. In contrast to ASLU (Adaptive Side Lobe Suppression), where the suppression is done for a single discrete direction, the method involves the clutter being suppressed for each range

bin even though direction varies between different bins. Another advantage ~~with the present invention~~ is that the method works with a single pulse, i.e. that it is not necessary to have coherence between several different pulses. The fact that the method operates on a single pulse means that clutter can be suppressed with the information provided by the reflections from the single pulse. This differs from what has been previously known, e.g. from US 559516, STAP or DPCA, which have already been described above.

*Please amend the paragraph beginning at page 10, line 22, and continuing to page 10, line 24, as follows:*

As mentioned above, the ~~invention~~ technology advantageously works without coherence between the pulses but it must be mentioned that the ~~invention~~ technology is not limited in this respect but also operates with coherence

*Please amend the paragraph beginning at page 10, line 26 and continuing to page 10, line 30, as follows:*

Placing the radar antennas in accordance with the present ~~invention~~ technology provides the possibility of suppressing clutter in the vertical direction, which is advantageous in the case of air targets. To suppress clutter in the vertical direction is not possible with a radar device with a number of antennas placed in the horizontal direction according to the prior art.

*Please amend the paragraph beginning at page 12, line 19, and continuing to page 12, line 21, as follows:*

Below, a description of the method according to the ~~invention~~ technology follows, where $x_1$ is represented in the first channel and where $x_2$ is represented in the second channel.

*Please amend the paragraphs beginning at page 15, line 10, and continuing to page ?, 16 line 19, as follows:*

By applying this estimate of the parameter $C(R_k)$, it can be seen that the result becomes equivalent to a so-called matched filter. This means that an estimate of the parameter $C(R_k)$ ~~according to the invention~~ is a generalization of the so-called matched filter. A matched filter is known in connection with radar and is described e.g. in Robey, D.R. Fuhrmann, E.J. Kelly, R. Nitzberg, "A CFAR Adaptive Matched Filter Detector", IEEE Transactions on Aerospace and Electronic Systems, Vol. AES-28, No. 1, pp. 208-216, January 1992.

According to an example embodiment ~~of the invention~~, the radar device comprises an antenna arrangement in the form of a monopulse antenna comprising two adjacent antennas which are above one another. One monopulse antenna comprises a system of antennas which can cooperate in transmitting a pulse and which cooperate in a known manner to receive a radar echo.

An arrangement comprising more than two antennas placed above one another is also possible within the scope of the ~~invention~~technology. For example, it can be said that three antennas give rise to two degrees of freedom. One degree of freedom can be used for clutter suppression and the second degree of freedom can be used for more precisely calibrating the current altitude of the target. To simplify the description of the invention, two embodiments of the invention comprising two antennas are described below.

According to one example embodiment~~ of the invention~~, the radar device comprises means for representing the video signal from the first antenna in the first channel and means for representing the video signal from the second antenna in the second channel. In the present embodiment, clutter components will thus occur in both channels according to the above description. As mentioned, the differences in magnitude between the clutter components are of such a type, that it is possible, by means of the estimation~~ according to the invention~~, to suppress the clutter components in the resultant video signals.

According to another example embodiment~~ of the invention~~, the radar device comprises means for summing the signals from pairs of antennas included in the radar system in the second channel and means for forming the difference between the signals from pairs of antennas included in the radar system in the first channel. In this embodiment, the second channel will be called sum channel Σ and the first channel difference channel Δ, below.

*Please amend the paragraph beginning at page 16, line 25, and continuing to page 17, line 7, as follows:*

When the reflected pulses come back to the antennas, the analogue output signals are added to one another and subtracted from one another analogously in a known manner before they are converted into video signals. The added analogue output signals are converted to a video signal in a sum channel Σ. The subtracted analogue output signals are converted into a video signal in a difference channel Δ. The sum channel provides the sum of the contributions of the different antennas for each bin and the difference channel provides the difference between the contributions of the two antennas for each bin. The sum channel represents a sum lobe in a resultant antenna pattern and the

difference channel represents a difference lobe in a resultant antenna pattern. The present ~~invention~~ technology thus comprises a radar antenna with the possibility to instantaneously form at least two lobes in the form of, for example, a sum lobe and a difference lobe, in the vertical direction.

*Please amend the paragraph beginning at page 17, line 9, and continuing to page 17, line 25, as follows:*

According to the present embodiment, the ~~invention~~ technology is characterized in that the clutter-suppressing means is arranged in such a manner that the clutter component $e_c$ for a certain bin $R_k$ is found in the sum channel $\Sigma$ multiplied by a complex constant $C(R_k)$, where the complex constant $C(R_k)$ is the quotient between the complex antenna gain of the sum channel and the difference channel in the direction of the ground for the current bin $R_k$. This clutter-suppressing means is arranged in such a manner that the clutter component $e_c$ for a certain bin $R_k$ is found in the difference channel $\Delta$. The clutter-suppressing means is arranged to estimate a complex constant $\hat{C}(R_k)$, which describes how the signals from the receiver antennas are weighted together separately for each bin $R_k$ in forming the resultant video signal $\Psi$. The estimated constant $\hat{C}(R_k)$ has the purpose of suppressing the clutter component $e_c$ in the resultant output video signal $\Psi$ in the sum channel $\Sigma$ via subtraction of the difference channel $\Delta$ multiplied by the estimated constant $\hat{C}(R_k)$. The clutter-suppressing means is arranged to create, by suppressing the clutter component, a zero position in the resultant antenna pattern of the resultant output video signal $\Psi$ in the direction of the current bin.

*Please amend the paragraph beginning at page 19, line 1, and continuing to page 19, line 8, as follows:*

In the resultant video output signal $\Psi(R_k)$ according to equation 3, the clutter component is suppressed for the current bin $R_k$. Clutter suppression can be illustrated in an antenna pattern for the resultant video signal $\Psi(R_k)$ (clutter suppression signal) through a resultant zero position. The present method creates an adaptive space filter where the resultant clutter-free signal $\Psi(R_k)$ can be used for subsequent filtering and/or detection. In addition, it can be used~~, according to the invention,~~ to directly form a detector according to GLRT or AMFD.

*Please amend the paragraph beginning at page 19, line 17, and continuing to page 19, line 25, as follows:*

In another example embodiment ~~of the invention~~, the analogue output signals from each antenna are converted to video signals. Sum channels and difference channels are then formed by the first video signal and the second video signal being summed in a sum channel for each bin and by the first video signal being subtracted from the second video signal in a difference channel for each bin. The subtraction is intended for calculating the difference between the first video signal and the second video signal for each bin. After that, estimation of the complex constant/vector is performed in the same way as described in the case described above.

*Please amend the paragraphs beginning at page 20, line 14, and continuing to page 20, line 18, as follows:*

An example embodiment ~~of the invention~~ will be described by means of the figures shown in the drawings.

Figure 1 diagrammatically shows a radar device according to ~~an~~ the example embodiment ~~of the invention~~ comprising two antennas;

*Please amend the paragraphs beginning at page 20, line 27, and continuing to page 20, line 28, as follows:*

Figure 4 diagrammatically shows an antenna pattern for a radar device according to Figure 1 according to an example embodiment ~~of the invention~~;

*Please amend the paragraphs beginning at page 21, line 1, and continuing to page 21, line 22, as follows:*

Figure 6 diagrammatically shows an antenna pattern of difference lobe $\Delta$ and sum lobe $\Sigma$ for a certain bin $R_k$ according to an example embodiment ~~of the invention~~;

*Please amend the paragraph beginning at page 21, line 13, and continuing to page 21, line 19, as follows:*

Figure 1 diagrammatically shows a radar device 1 according to an example embodiment ~~of the invention~~ comprising two antennas 2, 3 placed above one another in the vertical direction. As mentioned in the description above, the radar device can comprise more antennas than two. In the figure, the radar device is shown to be round but the radar device can have other forms, e.g. oval, square or polygonal, the antennas included in the radar device being placed above one another.

*Please amend the paragraph beginning at page 22, line 17, and continuing to page 22, line 18, as follows:*

In Figure 2, a bin $R_k$ is shown which includes the target ~~10~~ 11 which is located at a distance from the ground.

*Please amend the paragraph beginning at page 23, line 19, and continuing to page 23, line 21, as follows:*

A method for performing clutter suppression ~~according to the present invention~~ will be described below, using the designations specified in Figure 5.

*Please amend the paragraphs beginning at page 24, line 17, and continuing to page 25, line 4, as follows:*

Figure 6 diagrammatically shows an antenna pattern of a difference lobe Δ and sum lobe Σ for a certain bin $R_k$. Figure 6 shows an example embodiment ~~of the invention~~ where the signals $x_1$ and $x_2$ from the antennas are linearly combined in such a manner that a difference channel Δ and a sum channel Σ are formed. When the antennas receive reflections from the emitted pulses, the pulses are converted into output signals in the radar system. The output signals are added together in a sum channel Σ and subtracted in a difference channel Δ. The difference lobes Δ are a representation of the difference channel Δ and the sum lobe Σ is a representation of the sum channel Σ.

Figure 6 shows the target 11 in the sum lobe Σ. According to example embodiments ~~of the invention~~, the clutter component $e_c$ for a certain bin $R_k$ is located in the sum channel Σ multiplied by the complex constant C, where the complex constant C is the quotient between the complex antenna gain of the sum channel and of the difference channel in the direction of the ground for the current bin $R_k$. In the sum channel Σ, the target is also represented by a target signal $e_f$.

*Please amend the paragraphs beginning at page 24, line , and continuing to page ?, line ?, as follows:*